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DOI:

[10.1111/add.14901](https://doi.org/10.1111/add.14901)

*Document Version*

Peer reviewed version

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*Citation for published version (APA):*

Archer, M., Harwood, H. L., Stevelink, S., Rafferty, L. A., & Greenberg, N. (2020). Community reinforcement and family training and rates of treatment entry: a systematic review. *Addiction*, 115(6), 1024-1037. <https://doi.org/10.1111/add.14901>

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# Community reinforcement and family training and rates of treatment entry: a systematic review

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## ABSTRACT

**Background and Aims** Adaptations with different modes of delivery and target addictions have found highly divergent rates of success for Community Reinforcement Approach and Family Training (CRAFT). This study aims to clarify which (1) treatment components and (2) participant characteristics contribute to rates of identified patient (IP) treatment entry. **Method** Systematic review of CRAFT evaluation studies of all designs (controlled and uncontrolled) with data synthesis and narrative analysis of addiction treatment services and university research departments in North America and Europe. **Results** A total of 691 concerned significant others (CSOs), predominately female spouses/parents, participating in 20 distinct treatment conditions from 14 studies. The main outcome of IP treatment entry rate reported by CSOs up to 12 months after starting CRAFT with key predictors/correlates including IP addiction, IP-CSO relationship, CRAFT modality and integration of treatment for IP. Meta-analysis found CRAFT to be twice as effective as controls/comparison groups. Multi-modality treatment, including both individual and group sessions, yielded the highest IP treatment entry rates (77 and 86%), with progressively lower rates for individual (12.5–71%), group (60%) and self-directed workbook (13.3–40%) modalities. While all five studies targeting gambling addiction had consistently low rates (12.5–23%), other treatment components, including therapist training, treatment fidelity and integrating treatment for the IP, were implicated. **Conclusions** Adaptations of Community Reinforcement Approach and Family Training for different delivery modalities and addictions have yielded widely varying rates of treatment engagement for the identified patient, with those offering the most comprehensive support to the concerned significant other, including individual and group sessions, having highest levels of engagement success.

**Keywords** Addiction, community reinforcement, CRAFT, treatment entry, treatment modality, meta-analysis.

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Submitted 15 February 2019; initial review completed 29 April 2019; final version accepted 11 November 2019

## INTRODUCTION

Addictive disorders are characterized by diminished motivational control and intense craving for the addictive behaviour, making self-motivated treatment-seeking challenging [1–3]. Estimates suggest that fewer than 10% of the 15 million people in the United States with an alcohol use disorder seek professional help [4]; similar proportions apply to gambling addiction [5]. Prolonged untreated addiction can cause problems for the individual and their family, and delayed treatment, often provided during a crisis, is both less effective and more costly [6].

Addictive disorders also have pervasive negative consequences for partners, family members and friends [concerned significant others (CSOs)] who, through intimate

proximity, are at heightened risk of abuse, physical and mental health problems [7,8]. However, CSOs are also uniquely positioned to support behaviour change and are often credited as the main reason for seeking professional help [9,10].

Community Reinforcement Approach and Family Training (CRAFT) utilizes the unique position of CSOs and aims to improve their understanding of addiction and to modify their own behaviour to foster a supportive environment and increase the identified patient's (IP's) motivation to seek help [11]. CRAFT developed from the Community Reinforcement Approach (CRA) for substance misusers, which focuses on rewarding abstinence, therefore programmes for the CSO and IP can be congruent and overlapping [12]. CRAFT-trained therapists conventionally

provide eight to 12 individual sessions aiming to help CSOs to more clearly understand addiction and communicate with their IP, reward positive behaviour (and avoid rewarding negative behaviour) and encourage treatment-seeking.

Considerable evidence supports CRAFT as an effective intervention for CSOs to support their loved one to enter treatment. Treatment entry rates for IPs with substance use disorders (SUDs) have been consistently high; most studies achieve > 60% [13–15], with the earliest evaluation of CRAFT reporting a rate of 86% [16]. The CRAFT approach avoids characteristic features of the most widely used, but less effective, interventions for CSOs, specifically the acceptance of powerlessness to influence change of Al/Nar-Anon and the confrontational ultimatums of the Johnson intervention.

In recent years adapted versions of CRAFT have been evaluated for group treatment [17], as self-directed workbooks [18], targeting substance misuse among adolescents [19] and for use with people with a gambling addiction (e.g. [20]). Most recently, Kirby *et al.* have developed and evaluated a reduced form of CRAFT called Treatment Entry Training (TEnt) [21], which has a singular focus on IP treatment entry (i.e. without the CSO self-care components). Rates of IP treatment entry across these innovations have been highly divergent, ranging from the previously established levels of > 60% [21] down to 12.5% [22].

Despite varied intervention components within the new approaches, it is not clear why rates of IP treatment entry rates have varied so widely. For example, the use of a self-directed workbook in one treatment condition has proved extremely effective [18], while hardly effective at all in another [22], and the rates of entry from gambling-focused studies have been consistently low [20,22,23]. Moreover, it is not clear which, if any, CSO and IP characteristics differentiate those who enter treatment from those who do not (e.g. [19]).

While successful IP treatment entry with CRAFT has been well studied, including through randomized controlled trials (e.g. [16,21]) and an earlier systematic review of three randomized controlled trials (RCTs) covering comparisons to alternative interventions [24], this review focuses on a wide range of CRAFT study designs in order to take into account a greater breadth of evidence. The aims of this review are to: (1) clarify which treatment components contribute to IP treatment entry rates and (2) clarify which participant characteristics contribute to IP treatment entry rates. These findings will help to guide future adaptations and iterations of CRAFT.

## METHOD

### Design

Data from studies that had evaluated a CRAFT treatment through RCT were synthesized with the analysis described

below. Given the wide range of other (non-RCT) designs implemented, and other variability across interventions (such as point of assessment of IP treatment entry, mode of delivery, addiction targeted and CSO–IP relationship), a systematic narrative approach was also employed [25].

### Search strategy and selected studies

This review was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) Statement [26] (see Fig. 1). The following databases were searched in order to identify all published material: EMBASE, PsycINFO, Scopus, Cochrane Library, CINAHL and Web of Science. The following terms were included in all searches: ‘community reinforcement’ OR ‘community reinforcement therapy’ OR ‘community reinforcement family therapy’ OR ‘community reinforcement training’ OR ‘community reinforcement counsel?’ OR ‘community reinforcement and family training’, allowing for all forms of intervention delivery. These were limited to English language, human studies, journals and original research studies published between January 1980 and October 2018. The following inclusion criteria were applied: (1) CSOs of IPs with any problem who are treatment-resistant (i.e. currently not in treatment and refuse to enter treatment), (2) CRAFT intervention delivered through any format, (3) figures for IP treatment entry (defined as attending at least one session) reported and (4) all study designs.

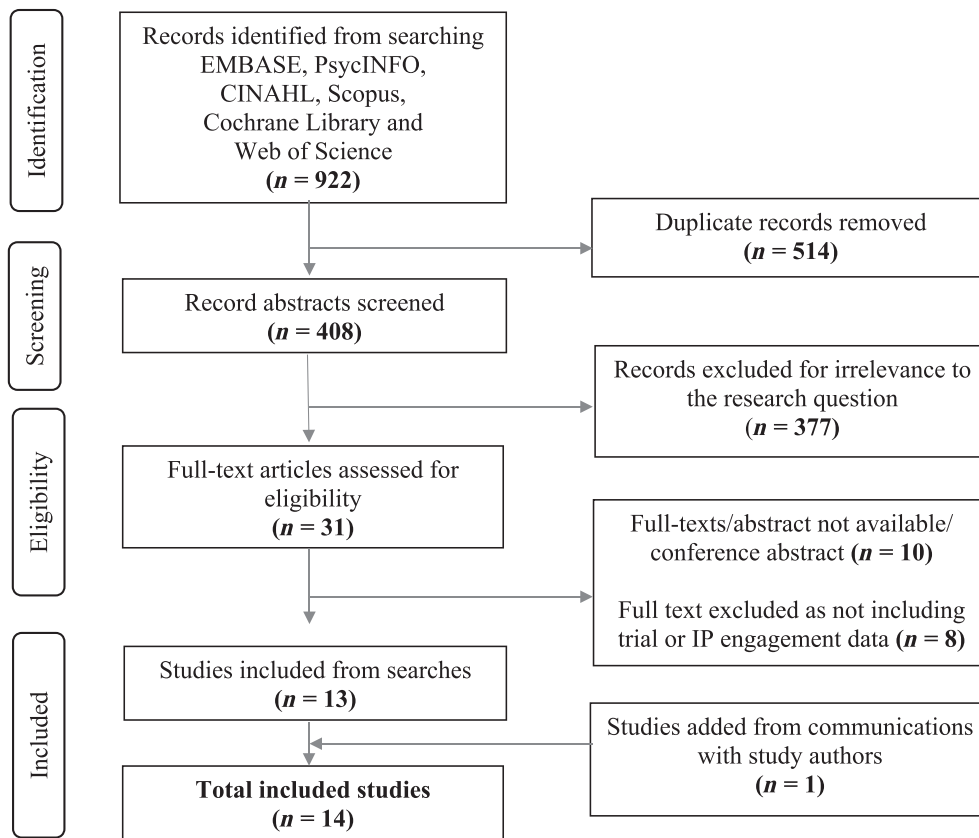
The search initially yielded 922 records, which was reduced to 409 after 513 duplicates were removed. A total of 377 records were excluded through screening of title and abstracts. Full texts of the remaining 32 studies led to 19 further exclusions (see Fig. 1). The remaining 13 studies, plus one study subsequently identified through contact with a study author, were included in this review. No additional studies were identified through manual inspection of the reference lists from these 14 studies.

### Data management and extraction

A standardized spreadsheet was used to extract data through recording the methodological characteristics, aims and main findings of selected studies. Rates of IP treatment entry and data pertaining to participant/sample (e.g. IP addiction, IP and CSO age, sex and relationship) and treatment condition (e.g. modality, therapist characteristics, integration of treatment for IP) for each CRAFT intervention are included in Tables 1 and 2.

### Data analyses

Data from studies including an RCT comparing CRAFT to either a control (i.e. treatment as usual) or another intervention [i.e. Alanon/Nar-Anon Facilitation (ANF)] were



**Figure 1** Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow diagram of the study search and inclusion process (adapted from Moher *et al.* 2009 [26])

synthesized using Review Manager version 5.3.5 to quantify the effect with 95% confidence intervals (CI), using the random-effects model. Narrative analyses were then undertaken to examine IP treatment entry rates in relation to the range of participant/sample characteristics and CRAFT treatment condition characteristics listed above under the 'Data management and extraction' heading.

### Methodological quality assessment

Two researchers (H.H. and M.A.) rated the 14 studies using the Effective Public Health Practice Project Quality Assessment Tool for Quantitative Studies (EPHPP [30]). This Cochrane Handbook [31]-recommended tool assesses six domains of potential bias: selection bias, study design, confounders, blinding, data collection method and withdrawals/dropouts (see Table 3), and can be applied to a range of quantitative study designs. For the purposes of this review the 'data collection' rating was limited to IP treatment entry, as this is the single outcome of interest. Quality ratings across the 14 included studies tended to be low: two studies received a 'moderate' rating, and the remaining 12 a 'weak' rating. Across all domains the two raters agreed on 75% of all points rated (63 of 84) with a Cohen's kappa of 0.58 (95% CI = 0.41–0.75), which is just

below the boundary between moderate and good agreement. Of the 21 points for which the two raters initially gave different scores, seven stemmed from differences in interpretation of the rating criteria and 14 from differences in interpretation of the study reporting. Most (14) deviations were a single 'grade' (e.g. moderate score compared to weak score) and all were satisfactorily resolved through discussion and with reference to the EPHPP Quality Assessment Tool Dictionary.

## RESULTS

### Summary of included studies and CRAFT treatment condition groups

Six of the 14 included studies comprised of multiple CRAFT treatment conditions (e.g. Manuel *et al.* compared group CRAFT to self-guided CRAFT [18]), so outcome data for a total of 20 distinct CRAFT treatment condition groups with a combined sample size of 691 CSOs are presented and compared (see Tables 1 and 2). Treatment group size ranged from seven [16] to 99 [28]. Among all 20 treatment condition groups IP treatment entry rates ranged from 12.5 to 86%. Rate of treatment entry was not associated with point at which it was measured, which ranged between 1.5 and 12 months, with high rates reported for

Table 1 Participant/sample characteristics and IP treatment entry.

Study (treatment)/country	CSO age (years) range/mean	CSO % Female	IP age (years) range/mean	IP % female	IP is CSOs: (relationship)	IP addiction	n	IP % Tx entry since CSO intake <sup>a</sup>
Sisson & Azrin, 1986 [16]/USA	28–62	100%	Not provided	0%	Spouse/partner 75%; sibling 17%; parent 8%	Alcohol	7	86% average 2 months
Miller <i>et al.</i> , 1999 [13]/USA	21–81/47	91%	Not provided	Not provided	Spouse/partner 67%; adult child 30%; parent 5%; adult grandchild 5%	Alcohol	45	64% within 6 months
Kirby <i>et al.</i> , 1999 [14]/USA	20–70	94%	31.2/16–41	23%	Spouse/partner 57%; adult child 36%; sibling 7%	Drug	14	64% within 2.5 months
Meyers <i>et al.</i> , 2002 (individual) [17]/USA	19–76 <sup>b</sup>	88% <sup>b</sup>	Not provided	Not provided	Adult child 53%; Spouse/partner 30%; friend, relative 17% <sup>b</sup>	Drug	29	59 within 6 months
Meyers <i>et al.</i> , 2002 (individual plus aftercare) [17]/USA	As above <sup>b</sup>	As above <sup>b</sup>	As above	As above	As above <sup>b</sup>	As above	30	77% within 6 months
Bischof <i>et al.</i> , 2016 (immediate intervention) [27]/Germany	49	88%	Not provided	Not provided	Spouse/partner 80%; adult child 10%; parents 6%; siblings 4% <sup>b</sup>	Alcohol	42	52% within 12 months
Bischof <i>et al.</i> , 2016 (wait list) [27]/Germany	49	97%	Not provided	Not provided	As above <sup>b</sup>	Alcohol	36	47% within 12 months
Kirby <i>et al.</i> , 2017 (CRAFT) [21]/USA	51	72%	43	41%	Spouse/partner 59%; adult child 23%; other 18%	Alcohol and/or drug	39	62% within 9 months (average 4.3 months)
Kirby <i>et al.</i> , 2017 (TeNT) [21]/USA	50	76%	45	24%	Spouse/partner 58%; adult child 29%; other 13%	As above	38	63% within 9 months (average 2.8 months)
Manuel <i>et al.</i> , 2012 (group) [18]/USA	26–76 <sup>a</sup> /51	85% <sup>b</sup>	Not provided	Not provided	Adult child 62.5%; Spouse/partner 20%; Sibling 7.5%; Parent 2.5%; Friend 2.5%; <sup>b</sup>	Alcohol and/or drug	20	60% within 6 months
Manuel <i>et al.</i> , 2012 (workbook) [18]/USA	As above <sup>a</sup>	As above <sup>b</sup>	As above	As above	As above <sup>b</sup>	As above <sup>b</sup>	20	40% within 6 months
Meyers <i>et al.</i> , 1998 [21]/USA	18–73/45	97%	18–51/30	23%	Adult child 56%; spouse/partner 34%; sibling 6%; parent 4%	Drug	62	74% within 6 months (average 1.5 months)
Waldron <i>et al.</i> , 2007 [19]/USA	46	83%	16.6 (14–20)	23%	Adolescent/young adult child 100%	Drug	42	71% average 1.5 months
Study (treatment)/country	CSO Age (yrs) range/mean	CSO % Female	IP Age (yrs) range/mean	IP % Female	IP is CSOs: (relationship)	IP addiction	n	IP % Tx entry since CSO intake <sup>a</sup>
Dutcher <i>et al.</i> , 2009 [28]/USA	51	90%	Not provided	Not provided	Spouse/partner 48%; adult child 28%; parent 6%; other relative 6%; other 12%	Alcohol and/or drug	99	55% within 6 months
Bisetto <i>et al.</i> , 2016 [29]/Spain	52	76%	Not provided	Not provided	Adolescent/young adult child 100%	Drug	25	60% within 2.5 months
Makarchuk <i>et al.</i> , 2002 [23] Canada	29–78/50	93%	Not provided	13%	Spouse/partner 73%; adult child 20%; parent 7%	Gambling	13	23% within 3 months
Hodgins <i>et al.</i> , 2007 (workbook) [20]/Canada	45 <sup>b</sup>	82% <sup>b</sup>	Not provided	31% <sup>b</sup>	Spouse/partner 62%; parent 18%; sibling 7%; adult child 6%; friend 5%; extended family 3% <sup>b</sup>	Gambling	48	14% within 3 months
	As above <sup>b</sup>		As above		As above <sup>a</sup>	As above <sup>b</sup>	51	17% within 3 months

(Continues)

Table 1. (Continued)

Study (treatment)/country	CSO age (years) range/mean	CSO % Female	IP age (years) range/mean	IP % female	IP is CSOs: (relationship)	IP addiction	n	IP % Tx entry since CSO intake <sup>a</sup>
Hodgins <i>et al.</i> , 2007 (workbook plus telephone support) [20]/Canada		As above <sup>b</sup>		As above <sup>***</sup>				
Nayoski <i>et al.</i> , 2016 (individual) [22]/Canada	47	93%	Not provided	Not provided	Spouse/partner 74%; Adult child 13%; parent 13%	Gambling	16	12.5% within 6 months
Nayoski <i>et al.</i> , 2016 (workbook) [22]/Canada	46	88%	Not provided	Not provided	Spouse/partner 67%; adult child 13%; parent 20%	Gambling	15	13.3% within 6 months

<sup>a</sup>Time-period indicates the point at which IP treatment entry rate was measured and is reported, or average time to treatment entry, based on available data. In all cases where multiple time-point rates are provided the highest rate is listed here.

<sup>b</sup>Per treatment group data not provided, so values pertain to all CRAFT samples or entire sample for that given study. IP = identified patient; CRAFT = Community Reinforcement Approach and Family Training; CSO = concerned significant other; TextT = Treatment Entry Training.



Table 2 CRAFT treatment condition characteristics and IP treatment entry.

Study (treatment)/country	CRAFT treatment modality offered	Number of Sessions offered/completed	IP treatment integrated/external	CRAFT therapists	n	IP % Tx entry since CSO intake <sup>a</sup>
Sisson & Azrin, 1986 [16]/USA	Multi-modality (individual plus some group activity where possible)	Open-ended/7.2 (before IP entered treatment)	Integrated	Not detailed	7	86% average 2 months
Miller <i>et al.</i> , 1999 [13]/USA	Individual	12/10.7	Integrated	Master's/bachelor's-level therapists, trained and supervised weekly in CRAFT with tapes reviewed	45	64% within 6 months
Kirby <i>et al.</i> , 1999 [14]/USA	Individual (plus conjoint family counselling as needed)	14/8.6	External	Experienced master's-level counsellors with supervision from PhD level clinical psychologist	14	64% within 2.5 months
Meyers <i>et al.</i> , 2002 (individual) [17]/USA	Individual (plus 2 emergency sessions if needed)	12/10.6	Integrated	Behaviourally oriented therapists, weekly supervision from CRAFT creator, random tapes reviewed and rated	29	59% within 6 months
Meyers <i>et al.</i> , 2002 (individual plus aftercare) [17]/USA	Mixed (Individual plus 2 emergency sessions plus 6 months group option)	As above <sup>b</sup>	Integrated	As above <sup>b</sup>	30	77% within 6 months
Bischof <i>et al.</i> , 2016 (immediate intervention) [27]/Germany	Individual	12/not provided	Integrated	Psychologists or social workers trained in the addiction field and 2-day CRAFT training, bi-weekly supervision/random tape review	42	52% within 12 months
Bischof <i>et al.</i> , 2016 (wait list) [27]/Germany	Individual	12/not provided	As above	As above	36	47% within 12 months
Kirby <i>et al.</i> , 2017 (CRAFT) [21]/USA	Individual	12–14/9.6	Integrated	Master's-level counsellors with at least 2 years clinical experience, doctoral level supervision/tape review	39	62% within 9 months (average 4.3 months)
Kirby <i>et al.</i> , 2017 (TEEnT) [21]/USA	Individual	4–6/4.8	Integrated	As above	38	63% within 9 months (average 2.8 months)
Manuel <i>et al.</i> , 2012 (group) [18] USA	group (plus workbook)	12/5.6	Integrated	Master's-level co-therapists, trained and supervised weekly by CRAFT creator	20	60% within 6 months
Manuel <i>et al.</i> , 2012 (workbook) [18]/USA	Self-directed workbook	Not applicable	As above	Not applicable	20	40% within 6 months
Meyers <i>et al.</i> , 1998 [13]/USA	Individual (plus 2 emergency sessions at therapist's discretion)	12/10.5	Integrated	Master's/bachelor's/clinical psychologist-level therapists. Weekly supervision/tape reviews	62	74% within 6 months (average 1.5 months)
Waldron <i>et al.</i> , 2007 [19]/USA	Individual (plus crisis sessions available)	12/9.9	Integrated	Master's-level substance abuse counsellors/clinical psychology doctoral students, trained in CRAFT, weekly supervision/tape reviews	42	71% average 1.5 months
Dutcher <i>et al.</i> , 2009 [28]/USA	Individual	12/8	Integrated/external	Counselling staff trained/supervised by CRAFT creator	99	55% within 6 months

(Continues)

Table 2. (Continued)

Study (treatment)/country	CRAFT treatment modality offered	Number of Sessions offered/completed	IP treatment integrated/external	CRAFT therapists	n	IP % Tx entry since CSO intake <sup>a</sup>
Bisette-Pons <i>et al.</i> , 2016 [29]/Spain	Group	10/not provided	Integrated	Not reported	25	60% within 2.5 months
Makarchuk <i>et al.</i> , 2002 [23]/Canada	Self-directed workbook	Not applicable	External	Not applicable	13	23% within 3 months
Hodgins <i>et al.</i> , 2007 (workbook) [20]/Canada	Self-directed workbook	Not applicable	External	Not applicable	48	14% within 3 months
Hodgins <i>et al.</i> , 2007 (workbook plus) [20]/Canada	Workbook plus telephone support	2/1.3	External	Bachelor-level problem gambling counsellors	51	17% within 3 months
Nayoski <i>et al.</i> , 2016 (individual) [22]/Canada	Individual	8–12/10.4	External	Master's-level therapists, 6-hour CRAFT training Weekly supervision/tape review with clinical psychologist	16	12.5% within 6 months
Nayoski <i>et al.</i> , 2016 (workbook) [22] Canada	Self-directed workbook	Not applicable	External	Not applicable	15	13.3% within 6 months

<sup>a</sup>Time-period indicates the point at which IP treatment entry rate was measured and is reported, or average time to treatment entry, based on available data. In all cases where multiple time-point rates are provided, the highest rate is listed here.

<sup>b</sup>Per treatment group data not provided, so values pertain to all CRAFT samples or entire sample for that given study. IP = identified patient; CRAFT = Community Reinforcement Approach and Family Training; TEnT = Treatment Entry Training; CSO = Concerned Significant Other.



**Table 3** Quality assessments of included studies using the EPHPP quality assessment tools for quantitative studies.

Study	Selection bias <sup>a</sup>	Study design	Confounders	Blinding	Data collection method <sup>a</sup>	Withdrawals and dropouts	Global score	IP % Tx entry <sup>a</sup>
Sisson & Azrin, 1986 [16]	—	+	—	—	+	+	—	86%
Miller <i>et al.</i> , 1999 [13]	—	+	+	+/-	+	+/-	+/-	64%
Kirby <i>et al.</i> , 1999 [14]	—	+	—	—	—	+	—	64%
Meyers <i>et al.</i> , 2002 [17]	—	+	+	—	+	-/+	—	59%/77%
Bischof <i>et al.</i> , 2016 [27]	—	+	+	—	+	+	—	52%/47%
Kirby <i>et al.</i> , 2017 [21]	—	+	+	—	-	—	—	62%/63%
Meyers <i>et al.</i> 1998 [21]	—	+/-	—	—	+	+/-	—	74%
Manuel <i>et al.</i> , 2012 [18]	—	+	+	+/-	+	+/-	+/-	60%/40%
Waldron <i>et al.</i> , 2007 [19]	—	+/-	—	—	+	+/-	—	71%
Dutcher <i>et al.</i> , 2009 [28]	—	+/-	—	—	+	—	—	55%
Bisetto-Pons <i>et al.</i> , 2016 [29]	+/-	+/-	—	—	—	—	—	60%
Makarchuk <i>et al.</i> 2002 [23]	—	+	+	+/-	—	+	—	23%
Hodgins <i>et al.</i> , 2007 [20]	—	+	+	—	—	—	—	14%/17%
Nayoski <i>et al.</i> , 2016 [22]	—	+	+	+/-	—	+/-	—	12.5%/13/3%

<sup>a</sup>Limited to IP treatment entry variable. IP = identified patient; EPHPP = Effective Public Health Practice Project Quality Assessment Tool for Quantitative Studies.

brief (e.g. 86% with 2 months [16]) and relatively long (e.g. 77% at 6-month follow-up [17]) intervals. Where rates at multiple follow-ups were reported the highest rates have been included. Eight studies included the comparison of CRAFT (11 different CRAFT treatment condition groups in total) to other treatments or control conditions through an RCT.

#### Overall effectiveness of CRAFT interventions versus other treatment conditions

Meta-analysis of the 11 different CRAFT treatment condition groups directly compared to other treatment or control conditions found CRAFT to be twice as effective [rate ratio (RR) = 2.04, 95% CI = 1.51–2.75,  $P \leq 0.00001$ , number needed to treat (NNT) = 2; Q-test:  $\chi^2_{(10)} = 16.12$  ( $P = 0.10$ ),  $I^2 = 38\%$ , see Fig. 2].

#### IP treatment entry rates and participant/sample characteristics

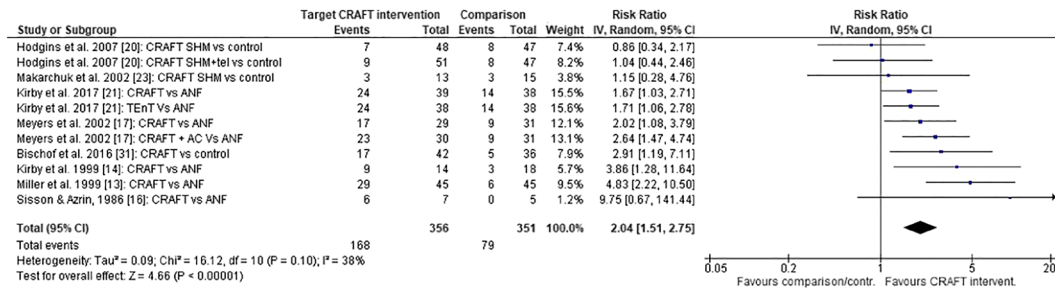
##### IP addiction

The 15 treatment condition groups that evaluated CRAFT with CSOs of substance-abusing individuals reported IP

treatment entry rates of between 40 and 86%. The five treatment conditions that evaluated CRAFT for CSOs of gambling addicted IPs—all reported by the same research team—reported consistently lower IP treatment entry rates, ranging between 12.5 and 23%. Meta-analysis of the 11 different CRAFT treatment condition groups that were compared to a control/comparison found that while CRAFT was more than twice as effective when the IP had a substance addiction (RR = 2.35, 95% CI = 1.77–3.12,  $P \leq 0.000001$ , NNT = 2; Q-test:  $\chi^2_{(7)} = 9.20$  ( $P = 0.24$ ),  $I^2 = 24\%$ ), it was no more effective than controls when the IP had a gambling addiction (RR = 0.98, 95% CI = 0.55–1.75,  $P \leq 0.95$ , NNT = 2; Q-test:  $\chi^2_{(2)} = 0.15$  ( $P = 0.93$ ),  $I^2 = 0\%$ ; see Fig. 3).

##### CSO and IP age and sex

CSO age ranged from 18 to 81 years across treatment condition groups, with mean age between 45 and 52 years where provided. The majority of CSOs were female in all 20 groups, ranging from 72 to 100%. Neither CSO age nor sex appeared to be associated with IP treatment entry rates. IP age was provided for only four of the 18 treatment condition groups targeting adult IPs (average age ranging



**Figure 2** Pooling of target Community Reinforcement Approach and Family Training (CRAFT) condition group by study versus comparison or control condition. SHM = self-help manual (aka CRAFT workbook); tel = telephone support calls; ANF = Alanon/NarAnon Facilitation. [Colour figure can be viewed at [wileyonlinelibrary.com](http://wileyonlinelibrary.com)]

from 30 to 45 years) and one of the two treatment condition groups targeting adolescent children (average age 17 years). Only Hodgins *et al.* noted an association with age, reporting this as a univariate predictor and as part of a logistic regression, with younger IPs more likely to enter treatment by the 6-month follow-up ('younger' was not further defined) [20]. IP sex was provided for nine treatment conditions, with % of female IPs ranging from 0 to 41%, and did not appear to be associated with IP treatment entry rates.

#### IP's relationship to CSO

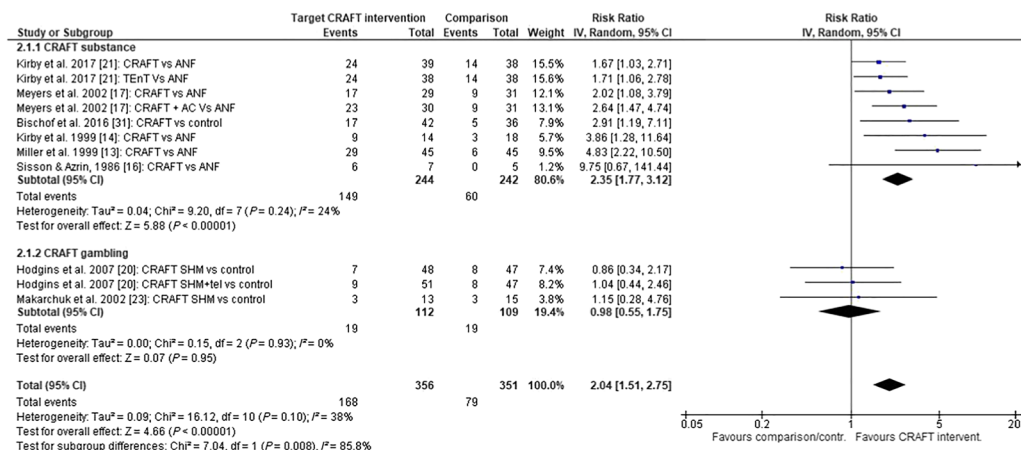
The largest proportion of IPs were reported to be spouse/partner of the CSO in 12 of the treatment condition groups, adult children in six and adolescent/young adult children in the remaining two. Overall, the nature of the CSO–IP relationship was not a determining factor for IP treatment entry, with high rates reported in studies where all CSOs were parents of the IPs (e.g. 71% from Waldron *et al.* [19]; 60% from Bisetto-Pons, González Barrón & Botella Guijarro [29]) and in studies where the CSOs were mainly the spouse/partner of the IP (e.g. 86% from Sisson & Azrin [16]; 64% from Miller *et al.* [13]). An exception

to this was reported by Meyers *et al.*, who found that significantly more parent CSOs (83%) successfully supported treatment entry of their adult children IPs than non-parent CSOs (31%) [15].

#### IP treatment entry rates and CRAFT treatment condition characteristics

##### CRAFT treatment modality

Thirteen of the treatment condition groups were offered primarily individual treatment (IP treatment entry ranged from 12.5 to 86%), two group treatment (IP treatment entry 60% for both) and five a self-directed workbook (IP treatment entry ranged from 13.3 to 40%). However, several treatment conditions include adjuncts to the primary modality. Notably, the highest levels of IP treatment entry were from the only two treatment conditions that offered individual treatment plus group sessions. Sisson & Azrin note that in addition to the individual treatment sessions, groups enacted role-plays so that past successful members could encourage newcomers (IP engagement = 86%) [16], and Meyers *et al.* offered 6 months of group sessions post-individual treatment (IP engagement = 77%) [17]. Adjusting to include this category of multiple in-person



**Figure 3** Pooling of target Community Reinforcement Approach and Family Training (CRAFT) condition group by study versus comparison or control condition subgrouped by identified patient (IP) addiction (substance or gambling addiction) [Colour figure can be viewed at [wileyonlinelibrary.com](http://wileyonlinelibrary.com)]

modalities ('multi-modality'), numbers of each modality and IP treatment entry ranges (in parentheses) are: two multi-modality (77 and 86%), 11 individual (12.5–71%), two group (both 60%) and five self-directed workbook (13.3–40%). Meta-analysis of the 11 different CRAFT treatment condition groups that were compared to a control/comparison confirmed the relative effectiveness of individual (RR = 2.29, 95% CI = 1.63–3.20,  $P \leq 0.000001$ , NNT = 2; Q-test:  $\chi^2_{(5)} = 7.64$  ( $P = 0.18$ ),  $I^2 = 35\%$ ) and multi-modality CRAFT (RR = 2.8, 95% CI = 1.58–4.96,  $P \leq 0.00004$ , NNT = 2; Q-test:  $\chi^2_{(5)} = 0.87$  ( $P = 0.35$ ),  $I^2 = 0\%$ ) CRAFT compared to CRAFT delivered through a self-directed workbook (RR = 0.98, 95% CI = 0.55–1.75,  $P \leq 0.95$ , NNT = 2; Q-test:  $\chi^2_{(2)} = 0.15$  ( $P = 0.93$ ),  $I^2 = 0\%$ ; see Fig. 4).

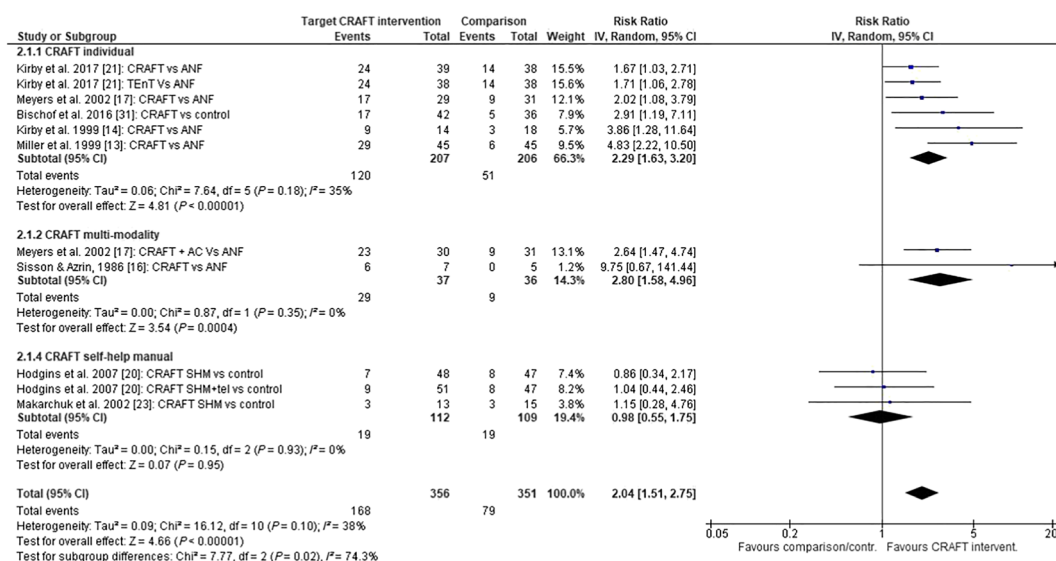
Manuel *et al.*'s study compared a self-directed workbook condition to workbook plus group sessions, finding the latter to yield significantly more IP treatment entry (40 versus 60%) [18]. By contrast, while Hodgins *et al.* found workbook plus telephone support to be marginally better than workbook-only (17 versus 14%) [20], the highest IP treatment entry rate (23%) for gambling-focused interventions came from a self-directed workbook-only treatment condition [23]. Thus, while the evidence suggests that multi-modal, individual and group modality CRAFT tends to give higher rates of IP treatment entry with alcohol and drug addictions, this is less clear for gambling addiction.

#### Number of CRAFT sessions offered/completed

The two multi-modality treatment conditions noted above, in which IP treatment entry was higher than in any other

condition, also offered the most sessions (open ended for Sisson & Azrin [16]; 12 individual, plus two emergency, plus up to 6 months of optional group sessions for Meyers *et al.* [17]). The most commonly offered number of sessions was 12, and this was the case in nine of the 16 treatment conditions with sessions (i.e. excluding the four self-directed workbook-only conditions). There is a wide range of IP treatment entry rates among these (from 52 [27] to 74% [15]). Moreover, Kirby *et al.* found that the reduced TEnT intervention, offering just four to six sessions focused singularly on IP treatment entry, was as effective as a full 12–14-session CRAFT programme (63 versus 62%) [21]. On balance, number of sessions (between four and 14) offered does not appear to be associated with success.

In addition, number of sessions offered does not equate to the number of sessions attended, which also appears to be unrelated to IP treatment entry. For example, five of the treatment conditions with individual treatment as primary modality had average attendance within a narrow range (between 10.4 and 10.7) yet had wide-ranging IP engagement rates (12.5–77%). Also, while offering an 'open-ended' number of sessions, Sisson & Azrin report that CSOs attended an average of 7.2 sessions before their IP entered treatment (with IP treatment entry rate of 86%) [16]. Interestingly, Meyers *et al.* report that while approximately half of their CSOs opted to attend the group sessions in their multi-modality treatment condition, this attendance did not give rise to any further IP treatment entry [17]. Thus, it seems that while neither number of sessions offered/completed, nor completing multiple modalities in a treatment condition, are associated with rate of IP treatment entry, being offered multi-modality treatment may be.



**Figure 4** Pooling of target Community Reinforcement Approach and Family Training (CRAFT) condition group by study versus comparison or control condition subgrouped by intervention modality (individual, multi-modal or self-help manual) [Colour figure can be viewed at [wileyonlinelibrary.com](http://wileyonlinelibrary.com)]

### *CRAFT treatment therapists*

There was a wide variety of clinical experience and training in CRAFT among the therapists providing treatment across the studies included in this review. The only problem-gambling study which included CRAFT therapists (i.e. was not workbook-focused) provided therapists with just a 6-hour training session on CRAFT [22], and this treatment group had the lowest of all IP treatment entry rates (12.5%). This research team does not mention other training and input from the CRAFT originators in their previous studies which, utilizing self-directed workbooks [20,23], also reported low levels of IP treatment entry (13.3–23%).

### *IP treatment integration*

Fourteen of the 20 treatment condition groups included an ‘integrated’ treatment for the IP provided by or linked directly to the same team providing the CRAFT intervention (IP treatment entry rates of 52–86%). This was not the case in any of the five treatment condition groups for problem gambling, meaning that IP treatment for gambling would need to be sought independently, and these interventions demonstrated the lowest levels of IP treatment entry (12.5–23%). The sixth treatment condition not to include an integrated IP treatment was Kirby *et al.*’s study, although this included family counselling in addition to individual treatment, and yielded IP treatment entry at 64% [14]. Thus, level of IP treatment entry may be associated with the ease by which treatment can be accessed and/or the inclusion of both the CSO and the IP with the same service provider.

### *Study quality and IP treatment entry*

The two studies to receive a strong quality rating comprised three treatment conditions, with IP treatment entry rates of 64% [13] (for an individual treatment) and 60/40% ([18] for group and workbook treatments, respectively). Treatment conditions from studies with poor quality ratings had IP treatment entry rates ranging from 86 to 14%. The two treatment condition groups with the highest IP treatment entry rates had poor and moderate quality ratings. On balance, study quality did not appear to be related to IP treatment entry.

## **DISCUSSION**

This review found that the 14 CRAFT evaluation studies (reporting results for 20 CRAFT treatment condition groups) published to date have mainly been of low quality. Meta-analysis with the 11 treatment conditions evaluated as part of an RCT found CRAFT to be twice as effective for IP treatment entry as comparison/control conditions. The more effective CRAFT interventions tended to include several ‘key’ treatment characteristics: individual therapy

modality, thorough training and supervision for therapists and integrated addiction treatments for IPs. Moreover, the two interventions with the very highest IP treatment entry rates comprised multi-modality treatments offering the CSO a combination of individual and group sessions.

The five treatment conditions targeting problem gambling, which all had IP treatment entry rates below 25%, were almost entirely lacking in these key treatment characteristics. Three of the five were exclusively self-directed workbook based, with a fourth adding two support telephone calls. Throughout treatment conditions for substance addictions, self-directed workbooks had the lowest rates of IP treatment entry. Manuel *et al.* point out that in their direct group plus workbook versus workbook-only comparison the near-significant difference in IP treatment entry rates (60 versus 40%,  $P = 0.06$ ) is likely to be judged clinically significant by practitioners [18]. In only one of the five treatment conditions targeting problem gambling were trained therapists utilized and their training consisted of a single 6-hour session [22]. Furthermore, the authors make no mention of previous training in CRAFT for either the therapist trainer or the team that adapted the intervention for problem gambling and developed the self-help materials [23]. Therapist competence and adherence to treatment programme have both been found to be associated with positive patient outcomes in community reinforcement approach (CRA) treatment for patients [32]. None of the five treatment conditions included integrated treatment for the IP. Indeed, Nayoski *et al.* cited lack of available services for gambling addiction as a possible reason for low rates of IP treatment entry [22]. Given that these five studies were all conducted in Canada, country of origin and regional variations in service availability may impact the success rates of CRAFT in general. Given this range of confounding variables, it is impossible to infer with confidence why rates among these studies are markedly lower than among CRAFT for substance addictions studies. One notable differentiator might be that gambling behaviours and effects may be more difficult to detect than those associated with substance misuse (e.g. inebriation), and so contingency management on the part of the CSO could be more challenging in general. Evaluations of CRAFT for problem gambling that include the key treatment characteristics identified here are required.

With one exception, type of CSO–IP relationship was not associated with IP treatment entry. Meyers *et al.* found that CSOs who were parents of their IPs had greater rates of success than those with other relationships [15]. The authors offer two possible explanations for this significant difference: (1) parents tend to ‘divorce’ [inverted commas in the original] themselves from their (adult) children and (2) parents are less worried about retaliation through violence. Although the authors do not elaborate on this, it seems to imply that



a more assertive stance on the CSO's part is conducive to greater levels of IP treatment entry.

Likelihood of the IP entering treatment seems to be associated with the breadth of the treatment offered to the CSO, and not the number of sessions offered or completed. The four treatment conditions achieving rates in excess of 70% were those offering multi-modality treatment [16,17] and two that explicitly stated that additional (crisis/emergency) sessions were available [15,19]. The potential to provide a relatively personalized treatment fit to the specific circumstances of each CSO may contribute to these positive outcomes. This inference is consistent with Smith & Meyers' instruction to therapists that, in terms of which components are included and at which stage in treatment, CRAFT should be delivered flexibly to meet the idiosyncratic needs of each CSO [11]. Closer examination of how CRAFT is offered and taken up, both in terms of modalities and programme components, is called for.

While CSO motivation for engaging with CRAFT was not reported systematically in the studies covered in this review, a study published in German has shown that this can play an important role in IP treatment entry [33]. Self-reported endorsement of the motive 'influencing the addict to seek treatment' prior to starting CRAFT was significantly associated with successful IP treatment entry, while motives such as 'wanting to improve own wellbeing' and 'reduce the IP's addictive behaviour' were not. By contrast, in their gambling-focused studies, Makarchuk *et al.* point out that their recruitment advertising did not specify IP treatment entry as a goal, so this may not have been a motivation for many of their participants [23].

Inferences on relative causal contribution to IP treatment entry are limited, as several treatment characteristics overlap inconsistently within and across studies (e.g. type of addiction, availability and cost of treatment in different countries, and training by the team who developed CRAFT). It is also important to recognize that a number of additional treatment characteristics that may be unique to particular services (e.g. inclusion of peer facilitators, therapist style and disposition) and CSO/IP characteristics (e.g. severity of addictions, other family and personal circumstances), not reported across studies and not covered in this review, may also contribute to successful IP treatment entry. Greater coordination between CRAFT providers and monitoring of a wider range of more nuanced intervention 'ingredients' might further improve understanding.

This review has been limited to IP treatment entry, so a review examining the impact of CRAFT upon CSO wellbeing and CSO-IP relationship quality is still needed. It is clear, for example, that benefits to CSOs are more pronounced than IP treatment entry in interventions for problem gamblers, and the authors of these studies suggest that this might well be the main focus of such treatments [23].

Recent innovations in online CRAFT delivery for military families have, in fact, been singularly focused on this [34], and other findings support this as a more tractable problem with web-based adaptations of CRAFT [35].

Ongoing work in the United States and United Kingdom is adapting CRAFT beyond addictive illnesses to post-traumatic stress disorder (PTSD) and common mental disorders (CMD) in military families (e.g. [36]). These and other CRAFT innovations will provide further understanding concerning which treatment components are most essential, how these can be successfully adapted and the extent to which participant and population characteristics are related to outcomes.

Treatment retention beyond initial treatment entry has not been covered by this review. While many studies included here do not report on IP retention, Brigham *et al.* adapted CRAFT for IPs already in treatment for opioid dependence (CRAFT-T, where 'T' is for treatment retention) and added two sessions with CSO and IP together, followed by 10 sessions for the CSO [37]. They found a significant effect on retention only when the IP was the CSO's adult child, which is intriguingly consistent with the idea posited above that an assertive stance on the part of the CSO enhances outcomes, and underlines the need to further examine CSO-IP relationship dynamics around CRAFT treatment.

Increases in the use of CRAFT over the past decade, in countries as diverse as the United Kingdom and Japan, has not been accompanied by rigorous evaluation and research. Communication and coordination among CRAFT practitioners globally is likely to accelerate improvements in delivery and outcomes. Given the range of IP treatment entry rates across CRAFT interventions reviewed here, and that the majority of those with addiction disorders do not enter treatment, efforts to optimize CRAFT treatments are likely to have a high clinical value. Also, it is important to recognize that the analysis was not pre-registered and therefore our results should be considered exploratory.

In conclusion, this review has provided a much-needed examination of diverse CRAFT research findings on the engagement of treatment resistant IPs. The range of results strongly suggest that 'more is more' and 'less is less' in terms of CRAFT treatment characteristics, finding multi-modality offerings that align with the fundamentals of CRAFT consistently most effective. While associations with basic demographic characteristics are less clear, CSO motivation and assertiveness toward the IP appear to be important factors for IP treatment entry and demand closer scrutiny. In order to maximize the likelihood of clinical engagement for the IP, future iterations of CRAFT should fully consider and measure these treatment and participant characteristics. Furthermore, efforts to coordinate and standardize reporting of evaluations of CRAFT interventions would greatly improve the research value.

## Declaration of interests

This paper presents independent research part-funded by the National Institute for Health Research (NIHR) BRC at the SLaM NHS Foundation Trust and King's College London (KCL). The views expressed are those of the author(s) and not necessarily those of the NHS, the NIHR or the Department of Health and Social Care (SS).

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